

HOW DOES SMALL MEDIUM ENTERPRISE IN DEVELOPING COUNTRIES OVERCOME INFORMATION AND COMMUNICATION TECHNOLOGY ADOPTION PROBLEMS?

Ambar Sari Dewi

University of Melbourne

Email Address: ambarsaridewi@gmail.com

Abstract

The role of Small Medium Enterprise (SME) has been proven to be important in economic development. Many research also believed that the rapid rise of SME's development caused by Information and Communication Technology (ICT) adaption in their business. However, its adoption in developing countries faces several problems. Using Rogers' (1995) diffusion of innovation theory and Manuelli's et.al (2007) recommendations, this essay will argue that to overcome the problem, a strong cooperation should be taken, interpersonal communication should be use as well as type of ICTs should be chosen wisely, based on specific needs.

Keywords : Small Medium Enterprise (SME), Information and Communication Technology (ICT), Developing Countries and Cooperation

Intisari

Usaha Kecil Menengah (UKM) telah terbukti berperan penting dalam perkembangan ekonomi. Berbagai penelitian menunjukkan bahwa salah satu faktor pendorong maraknya UKM adalah adopsi Teknologi Informasi dan Komunikasi (TIK). Akan tetapi, adopsi TIK di negara berkembang menemui berbagai masalah. Dengan menggunakan teori Difusi Inovasi yang dikemukakan oleh Rogers (1995) dan rekomendasi penelitian Manuelli dkk (2007), paper ini berargumen bahwa untuk mengatasi masalah tersebut, diperlukan kerjasama yang kuat, pemanfaatan

*komunikasi interpersonal serta penggunaan TIK yang dipilih
berdasar kebutuhan pengguna.*

Kata Kunci: Usaha Kecil Menengah (UKM), Teknologi Informasi dan Komunikasi (TIK), Negara Berkembang dan Kerjasama

Introduction

Several studies have shown that Small Medium Enterprise (SME) play significant role in economic development both in developed¹ and developing one², for example, providing job opportunity, increasing local economic growth and export values. Many research also believed that the rapid rise of SME's development caused by Information and Communication Technology (ICT) adaption in their business. ICT is considered capable of "provide low-cost business, introduce new products"³, "improve communications"⁴ and "gather information and seek potential business partners"⁵. Furthermore, ICT enabled SME to "expand new market with lower cost"⁶, "reducing transaction costs"⁷ and "increase internal coordination"⁸.

In spite of ICT's importance in small firms, its adoption in developing countries faces several problems. Previous studies have concluded several factors that hamper the adoption, for instance, lack of knowledge, financial and policy support. Summarising MacGregor and Vrazalic (2004), there are five factors that considered as barriers of ICT adoption such as certain types of technology are unsuitable for product or customers demand. Additionally, high risk of security and high cost of investment and

1 A Berry, et.al, The economics of SMMEs in South Africa, (Johannesburg, South Africa, 2002).

2 H.Hill, Small and medium enterprises in Indonesia: Old policy challenges for a new Administration, (*Asian Survey*, 41:2 2001), p. 248-270.

3 T.E. Kaplan, et.al, The strategic role of Communication technology in small business: where we are and where we should be Going, (*American Business Review*, January, 86-91, 1997)

4 S.M Coccia, Using the Internet to level the playing field, (*Medical Marketing and Media*, January, 32:1, 1997), p. 30-36

5 P.Hawking, The implications of Internet telephony to small businesses in Australia, (*Conference Proceedings from SEAAANZ Annual Conference*, September 1997)

6 C. Steinfeld and S.Klein, Special section: Local vs. global issues in electronic Commerce, (*Electronic Markets*, 9:1/2, 1999), p. 45-50

7 S. Globerman et al, The economic performance of foreign affiliates in Canada, (*Canadian Journal of Economics*, 27, 143-56, 2001).

8 Cavusgil 2002 in Kraemer et al., Impacts of globalization on e-commerce adoption and firm performance: A cross country investigation, (University of California, Irvine, Center For Research On Information Technology And Organization, 2002).

implementation hamper SME's owner to adopted ICT as well as the lack of tacit knowledge and lack of hardware/software information.

However, there are ways to overcome those problems. Using Rogers' (1995) diffusion of innovation theory and Manueli's et.al (2007) recommendations, this essay will argue that cooperation between the government, handicrafts exporter and SME's owner should be taken seriously to overwhelm the problems. Moreover, interpersonal communication channel and intensive monitoring should be used to ensure proper ICT adoption. In addition, this essay will argue that type of ICTs should be chosen wisely, based on specific needs. This essay will begin with a brief explanation of diffusion of innovation theory and definitions of SME. Next, it will address problems which faced by SME in Malaysia and Ghana as described by Hashim (2007) and Taylor and Owusu (2012) in their studies respectively. Discussion section will discuss theory and findings afterwards.

Definition of SME

While many scholars have similar understanding of the importance of SME in national economic sector, the definition of SME vary widely. It is argued that SME should be seen from quantitative aspects, such as number of employments, business size, annual turnover or amount of assets⁹. Meanwhile, qualitative view should be counted since it will imply to the business operation mode¹⁰.

To set the context, this essay will use both viewpoints to define SME. Employment number will be used to distinguish SME with large enterprises by using a European Union's (EU) definition¹¹. According to the EU, an enterprise is categorized as small if it employs between 10 and 99 employees while medium-sized employs 100-499 people. Additionally, qualitative aspects of SME are examined by exploring its characteristics, such as poor management skills, intuitive decision making process, lack of financial resources and access, lack of ICTs capabilities and knowledge, produce specific products, have a small market and "customer oriented"¹².

9 Meredith (1994) seperti dikutip oleh MacGregor & Vrazalic, *Electronic Commerce Adoption in Small to Medium Enterprises (SME)*, (Australia: *School of Economics and Information Systems University of Wollongong*, 2004), p. 5.

10 *Ibid*,

11 Nandan, *Adoption of information and communication technology in small and medium enterprises: A synthesis of literature*, (*Sri Lankan Journal Of Management*, 14:2, 2009)

12 MacGregor & Vrazalic, *Electronic Commerce Adoption in Small to Medium Enterprises (SME)*, (Australia, *School of Economics and Information Systems University of Wollongong*, 2004).

Diffusion of Innovation

ICT adoption can be explained by analysing its diffusion. According to Rogers, diffusion refers to:

The process by which an innovation, such as an idea, practice, or object that is perceived as new by an individual or other unit of adoption, is created and share with one another through certain channels over time among the members of a social system (1995 p. 10-12).

Studying Rogers' definition of diffusion, it can be deduced that diffusion consists of four main elements such as innovation, communication channel, time and social system. A case which Rogers often uses to explain his definition is the failure of water boiling campaign in Peruvian Villages in the 1960s. The campaign aimed to increase the health of Peruvian people but it failed because they thought that boiled water was a poor family habit and it was against their faith. Furthermore, a government health official whose main duty was to encourage people, failed to explain the advantages of boiled water. Instead of using local language and term, the official continued to use sophisticated terms in which local people did not understand.

According to Rogers' case, it is clear that the diffusion of innovation, resulting in the decision to adopt or not adopt certain innovation, must carefully be seen as an interlinked process of innovation itself, communication methods and channel as well as local wisdom. Thereafter, four elements of innovation will be used to unveil ICT adoption problems in developing countries.

Profile of SME in Malaysia and Ghana

Fong (2002) addresses the significant role of Malaysian SME in the country's economic growth, specifically in a large percentage of workforce and the number of total established manufactures¹³. According to Fong (2002), the top five of small industries in Malaysia are "food and beverages, fabricated metal products, wood and wooden crafts and basic metals"¹⁴. In addition, the Malaysian Government has offered incentives and benefits to "improve technology accumulation and enhance the quality of SME's workforce through education, experience and skills development"¹⁵.

13 Fong (2002), seperti dikutip dalam Hashim, Information communication technology (ICT) adoption among SME owners In Malaysia, (*international journal of business and information*, 2:2, 2007), p. 222.

14 *Ibid.* p 223

15 *Ibid.* p. 225

By doing so, the emerging knowledge based economy is seen as a challenge and competition.

Even though Malaysian SME played an important role, ICT adoption in the country was low due to the lack of ICT skill. Hashim (2007) states that this was because the ICT owner seldom used ICT. As a result, they thought that ICT was difficult to learn and use. Moreover, the Malaysian Government's incentives and benefits did not work to force SME's owner to take certain training to improve their skill.

Similarly, handicrafts sector in Ghana is one of the leading sectors in its national economy. Although it is the smallest sector, crafts industry in Ghana showed a good performance in early 2000s¹⁶. In 2001, total revenue from handicrafts sector was \$12 million. This amount was increased slightly to \$14 million in 2002. However, due to the tight competition among other countries, Ghana total export was declined almost one-third in 2007 to \$3.79 million. Ghana produced various craft products, ranging from wood carvings to traditional musical instrument and jewels and metal products¹⁷. In spite of crafts industry's contribution to national economic sectors, this sector faced various ICT drawbacks. Taylor and Owusu (2012) states that "the lack of owner's awareness of the technology, the lack of ICT's infrastructure, and limited government's rule in Ghana"¹⁸ has led to Ghana's export revenue decline over the years.

Discussion

The low rate of ICT adoption by SME in developing countries such as Malaysia and Ghana was caused by the lack of knowledge, information and policy support. Using Rogers' element of diffusion, Manuelli et.al (2012) recommended several strategies to adopt ICT such as using ICT innovation appropriately and maximizing interpersonal communication channel. In addition, paying attention to social value and agent as well as considering the time sequence in ICT adoption, are another things need to think about. Manuelli's suggestion is based on his findings on how SME in New Zealand adopted ICT. However, those four elements must be conducted in a network and cooperation between government, higher education institutions and non-governmental organisations (NGOs). Therefore, ICT can be properly adopted.

16 Taylor & Owusu, Factors affecting internet and e-commerce adoption among Small and medium-sized enterprises non-traditional exporters: Case studies of Ghanaian Handicraft exporters,(*European Journal of Business and Management*, 4:13, 2012), p.25-33.

17 *Ibid*.p 24

18 *Ibid*,p. 25.

According to Rogers, innovation which this essay perceived as new is ICT. For several SME's owner, ICTs such as computer, websites and mobile phone, may be seen as new idea and knowledge although they were released last year. A complex transaction system of electronic commerce is also an innovation in this context. Following Manuelli, ICT adoption does not merely use computer during the production process or when uploading sample product in a website, but it requires several considerations before, during and after making decision. For example, mobile phones may be powerful tools for SME in rural area such as a village in Indonesia, due to the lack of internet infrastructure. The mobile phone was used by SME in Indonesia to get price information related to raw material stock, or new product price. Mobile phones are also cheaper to buy, which correspond to SME's low financial resource. In contrast, a website could reach wider potential buyers rather than mobile phones. Although it may be more expensive than a mobile phone and require certain skill, the website has more advantages than other ICT tools as it is interactive and accessible. Combining these two media, SME can get benefits from supply and demand side. Therefore, the decision to adopt certain types of ICT should be based on SME's capabilities and needs.

Source of information about ICT is another significant aspect to look at. Most of SME get information from mainstream media such as television, radio, newspaper or magazine, of which most of the contents persuade audience to purchase new version of ICT type. Moreover, some types of technology may have negative stereotype in society and can hamper its adoption. In this case, the internet might stigmatize as bad because of its content, such as pornography and fraud. However, interpersonal communication will solve this by giving information about the positive usage of internet. Interpersonal communication channel has been proven to be effective to inform SME regarding type of ICT should be adopted. Based on Manuelli findings, the most effective channel is face to face meeting. Conducting such meeting not only enables SME to get and share information and knowledge, but also allows them to explore their daily problem and finds solutions. In short, face to face meeting create a comfortable feeling which encourages SME to express their opinion, experience and knowledge.

Next, due to the lack of skill and knowledge, some SMEs require more time to adopt ICT than other. Manuelli's example of fax machine adoption by SME in New Zealand has proven that they

needed time to learn new thing and get use to it. SME in New Zealand faced several difficulties in the beginning, but they managed to solve it. A similar process was experienced by SME's owner in Central Java, Indonesia when they used open source software in their computers to improve their business. It was a painful process because they were accustomed to Microsoft software and it was difficult to change their habits. However, after they used it in their daily business, they became the master and were able to share the knowledge to another SME in different region. This process needs intensive mentoring and training from experts. Therefore, good network with other parties is compulsory.

Lastly, Rogers' and Manuelli's suggestions imply another requirement such as strong network and policy support. As previously mentioned, the decision to adopt ICT innovation and training cannot be provided by SME themselves. Some SME have a lot of problems to solve and may not have spare time to think about another one. Furthermore, the lack of capabilities and knowledge are also the main obstacles to consider about. Connecting with other parties who have the access to knowledge and information is very helpful to work the problem. Higher education institutions, government offices and non-governmental organisations usually have specific program related to SME's capacity building such as training, workshop, seminar, business mentoring. Building a good relationship with those parties will not only increase SME capabilities, but also create the mutual benefit.

Conclusion

This essay have presented the importance of SME in national economy and its problems due to the low level of ICT adoption, especially in developing countries. Malaysian and Ghanaian SME' development are shown as case studies relating to ICT adoption problems. Rogers definition of diffusion of innovation is used to prevail the obstacles, following by Manuelli's suggestion. ICT adoption by SME in developing countries will be successful if SME chose the type of technology wisely. However, choosing the right technology is not enough unless the SME build network and cooperate with another party to overcome their problems. By doing so, small firms will grow stronger and contribute more to national economic development.

References:

- Berry, A., M. von Blottnitz, R. Cassim, A. Kesper, B. Rajaratnam, & D. E. van Seventer, (2002). The economics of SMMEs in South Africa, *Trade and Industrial Policy Strategies*, Johannesburg, South Africa.
- Coccia, S.M. (1997), Using the Internet to level the playing field, *Medical Marketing and Media*, January, 32:1 , 30-36.
- Globerman, S., J., Ries, and I., Vertinsky, (1994). The economic performance of foreign affiliates in Canada, *Canadian Journal of Economics*, 27, 143-56
- Hawking, P. (1997), The implications of Internet telephony to small businesses in Australia, *Conference Proceedings from SEAANZ Annual Conference*, September 1997.
- Hashim, J., (2007), Information communication technology (ICT) adoption among SME owners In Malaysia, *international journal of business and information*, 2:2, 221-240.
- Hill, H. (2001), Small and medium enterprises in Indonesia: Old policy challenges for a new administration, *Asian Survey*, 41:2 , p. 248-270.
- Kaplan, T.E., Johnson, I.W., Pearce G.C. and George, G. (1997) The strategic role of Communication technology in small business: where we are and where we should be Going, *American Business Review*, January, 86-91.
- Kraemer, K., Gibbs, J., & Derick, J (2002), Impacts of globalization on e-commerce adoption and firm performance: A cross country investigation, *Center For Research On Information Technology And Organization*, University of California, Irvine.
- MacGregor, R. & Vrazalic, L., (2004), Electronic Commerce Adoption in Small to Medium Enterprises (SME), *School of Economics and Information Systems University of Wollongong*. Australia.
- Manuaeli, K., Latu, S., Koh, D., (2007), ICT adoption models, *Proceeding of 20th Annual Conference of the National Advisory Committee on Computing Qualifications*, 2007 pp 175-181.
- Nandan, S., (2009), Adoption of information and communication technology in small and medium enterprises: A synthesis of literature, *Sri Lankan Journal Of Management*, 14:2.
- Rogers, E.M. (1995), *Diffusion of innovations*, (4th ed.) Free Press, New York, 1995.
- Steinfeld, C., & Klein, S. (1999). Special section: Local vs. global issues in electronic commerce. *Electronic Markets*, 9:1/2, 45-50.

- Taylor, E., Owusu, E. D. E., (2012), Factors affecting internet and e-commerce adoption among Small and medium-sized enterprises non-traditional exporters: Case studies of Ghanaian Handicraft exporters, *European Journal of Business and Management*, 4:13, pp 25-33.
- Tambunan, T., (2008), Development of SME in ASEAN with reference to Indonesia and Thailand, *Chulalongkorn Journal of Economics*, 20:1, April 2008: 53-83

